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WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(54) Title: PHASE DETERMINATION OF A RADIATION WAVE FIELD

(57) Abstract

A method and apparatus for quantitative determination of the phase of a radiation wave field is disclosed. A representative measure of the rate of change of intensity of the radiation wave field over a selected surface extending generally across the wave field is transformed to produce a first integral transform representation. A first filter is applied to the first integral transform representation corresponding to the inversion of a first differential operator reflected in the measure of rate of change of intensity to produce a first modified integral transform representation. An inverse of the first integral transform is applied to the first modified integral transform representation to produce an untransformed representation. The untransformed representation is corrected based on a measure of intensity over said selected surface and again transformed to produce a second integral transform representation. A second filter is applied to the second integral transform representation corresponding to the inversion of a second differential operator reflected in the corrected untransformed representation to produce a second modified integral transform representation. An inverse of the second integral transform is applied to the second modified integral transform representation t produce a measure of phase of the radiation wave field across the selected plane.